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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TIMOTHY W. FUEHRER, DONALD RAYMOND LATURELL,  
LANE A. SMITH, and CHRISTOPHER J. WITTENSOLDNER

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Appeal 2008-5660  
Application 09/723,451  
Technology Center 2600

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Decided:<sup>1</sup> February 4, 2009

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Before JOHN A. JEFFERY, MARC S. HOFF, and CARLA M. KRIVAK,  
*Administrative Patent Judges.*

JEFFERY, *Administrative Patent Judge.*

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

## DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-6, 9-16, 18-23, 25-30, and 33-38. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

Appellants invented an electrical interface that increases the attenuation of an undesired signal by using inductive coupling in which primary and secondary inductors and a filter are utilized in conjunction with a codec. A parasitic capacitor is operably coupled between the primary and secondary inductors.<sup>2</sup> Claim 1 is illustrative:

1. An electrical interface, comprising:

a codec that generates two signal paths that together form an input differential pair;

a primary inductor and a secondary inductor for operably coupling said input differential signal pair to an output differential signal pair,

a filter that attenuates a signal occurring in the output differential signal pair; and

a parasitic capacitor operably coupled between the primary inductor and the secondary inductor, wherein the parasitic capacitor has a capacitance in the range of approximately 0.5 pF to approximately 2.5 pF.

The Examiner relies on the following prior art references to show unpatentability:

Yorinks	US 4,401,955	Aug. 30, 1983
Lowe	US 5,864,580	Jan. 26, 1999

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<sup>2</sup> See generally Spec. 2:24–3:19; Abstract; Fig. 1.

Herbert	US 6,137,392	Oct. 24, 2000 (filed Oct. 4, 1999)
Sun	US 6,212,263 B1	Apr. 3, 2001 (filed Sep. 30, 1998)

1. The Examiner rejected claim 38 under 35 U.S.C. § 112, ¶ 1 as failing to comply with the written description requirement (Ans. 4).
2. The Examiner rejected claim 38 under 35 U.S.C. § 112, ¶ 2 as being indefinite (Ans. 4).
3. The Examiner rejected claims 1-6, 9-16, 18, 19, 21-23, 25-30, and 33-38 under 35 U.S.C. § 103(a) as unpatentable over Sun, Herbert, and Yorinks (Ans. 5-8).
4. The Examiner rejected claim 20 under 35 U.S.C. § 103(a) as unpatentable over Sun, Herbert, Yorinks, and Lowe (Ans. 9).

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Brief and the Answer<sup>3</sup> for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

#### THE § 112, ¶ 1 REJECTION

The Examiner finds that the subject matter corresponding to the limitation recited in claim 38 that “the parasitic capacitor has a capacitance that is as small as possible” constitutes new matter because the Specification

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<sup>3</sup> Throughout this opinion, we refer to the Appeal Brief filed Feb. 4, 2008 and the Examiner’s Answer mailed Apr. 9, 2008.

as originally filed allegedly fails to support this limitation (Ans. 4).

Appellants respond that when this limitation is considered as a whole, it is a positive structural limitation as it accurately defines the functionality of the parasitic capacitor (Br. 9). As such, Appellants contend, ordinarily skilled artisans would be able to determine the exact characteristics of the parasitic capacitor without undue experimentation (*Id.*).

The issue before us, then, is as follows:

#### ISSUE

Have Appellants shown that the Examiner erred in finding that the subject matter corresponding to the parasitic capacitor having a capacitance that is as small as possible constitutes new matter in rejecting claim 38 under § 112, first paragraph?

#### FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

1. In the section entitled “Summary of the Claimed Subject Matter” of the Brief, Appellants cite Page 6, lines 14-17, 21, and 22 of the Specification in connection with the disputed limitation of claim 38 (Br. 5).

2. These cited passages are reproduced from the originally-filed Specification as follows:

FIG. 1 also illustrates a parasitic capacitor 40 operably coupled between the primary inductor 20 and the secondary inductor 22. The parasitic capacitor can represent a capacitance between the primary inductor 20 and a secondary inductor 22 in the transformer 24.

... Typically, the capacitor 40 is designed to have a capacitance in the range of approximately 0.5 pF to approximately 2.5 pF.

(Spec. 6:14-17, 21, 22).

3. The originally-filed Specification indicates that “[t]he parasitic capacitor 40 can have various capacitance values. The inventors have discovered, however, that the capacitance of the capacitor 40 should be minimized in order to prevent common mode noise signals from interfering with the desired data signals being transmitted over the differential signal pair 15” (Spec. 6:18-21).

#### PRINCIPLES OF LAW

To satisfy the written description requirement, the disclosure must convey with reasonable clarity to skilled artisans that Appellants were in possession of the claimed invention as of the filing date. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

#### ANALYSIS

We are persuaded that the Examiner erred in rejecting claim 38 under § 112, ¶ 1. At the outset, we note that Appellants did not squarely address the Examiner’s position regarding the disputed limitation of claim 38 as constituting new matter—a fact noted by the Examiner (Ans. 9). Appellants’ response to both of the Examiner’s rejections under § 112 is included under a single heading (Br. 9).

Although Appellants assert that the limitation is a “positive structural limitation” and that ordinarily skilled artisans would be able to determine the exact characteristics of the parasitic capacitor without undue

experimentation (*Id.*), Appellants do not squarely address why the limitation is not *new matter* as the Examiner asserts. Rather, Appellants' arguments are more germane to issues raised by the Examiner's indefiniteness rejection— fundamentally different issues from those raised by the Examiner's written description rejection which involves determining whether Appellants actually possessed the invention as of the filing date. *See Vas-Cath*, 935 F.2d at 1563-64.

Nevertheless, we find that the record before us conveys with reasonable clarity that Appellants were in possession of the subject matter of the disputed limitation of claim 38 as of the filing date of the present application. In the section entitled "Summary of the Claimed Subject Matter" of the Brief, Appellants cite Page 6, lines 14-17, 21, and 22 of the Specification in connection with the disputed limitation of claim 38 (FF 1).

While these specific passages are silent regarding the parasitic capacitor having a capacitance that is as small as possible as claimed (*see* FF 2), the Specification does, however, indicate in a related passage that "the capacitance of the [parasitic] capacitor 40 should be *minimized* in order to prevent common mode noise signals from interfering with the desired data signals being transmitted over the differential signal pair 15" (FF 3; emphasis added).

Based on this express teaching of *minimizing* the capacitance of the parasitic capacitor for the same purpose as recited in claim 38, we find that Appellants' disclosure as originally filed conveys with reasonable clarity to skilled artisans that Appellants were in possession of the disputed limitation of claim 38 as of the present application's filing date.

For the foregoing reasons, we find that the Examiner erred in rejecting claim 38 under § 112, ¶ 1.

#### THE § 112, ¶ 2 REJECTION

The Examiner takes the position that claim 38 is indefinite because the limitation calling for the parasitic capacitor to have a capacitance “that is as small as possible” does not clearly define the value of the capacitor. According to the Examiner, this capacitance value “will vary time to time” as the technology changes (Ans. 4, 10).

Appellants’ response is the same as that indicated previously with respect to the written description rejection, namely that when the disputed limitation of claim 38 is considered as a whole, it is a positive structural limitation as it accurately defines the functionality of the parasitic capacitor (Br. 9). As such, Appellants contend, ordinarily skilled artisans would be able to determine the exact characteristics of the parasitic capacitor without undue experimentation (*Id.*).

The issue before us, then, is as follows:

#### ISSUE

Have Appellants shown that the Examiner erred in finding that the limitation of claim 38 calling for the parasitic capacitor to have a capacitance that is as small as possible while still preventing common mode noise signals from interfering with signals being transmitted over the input differential pair renders the claim indefinite under § 112, second paragraph?



## PRINCIPLES OF LAW

Claims must “particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2. The test for definiteness under 35 U.S.C. § 112, second paragraph, is “whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted).

Although “[a] claim term is not indefinite just because it poses a difficult issue of claim construction[,]” *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed. Cir. 2008) (internal quotation marks and citations omitted), “if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.” *Ex Parte Miyazaki*, No. 2007-3300, slip op. at 11-12 (BPAI Nov. 19, 2008) (precedential), *available at* <http://www.uspto.gov/web/offices/dcom/bpai/prec/fd073300.pdf>.

The doctrine of claim differentiation creates a presumption that each claim in a patent has a different scope.... The difference in meaning and scope between claims is presumed to be significant to the extent that the absence of such difference in meaning and scope would make a claim superfluous.

*Free Motion Fitness, Inc. v. Cybex Int’l, Inc.*, 423 F.3d 1343, 1351 (Fed. Cir. 2005) (internal quotation marks and citations omitted).

## ANALYSIS

We are not persuaded of error in the Examiner's indefiniteness rejection of claim 38. In interpreting claim 38, we first turn to the Specification for guidance. As we indicated previously, the Specification indicates that "the capacitance of the [parasitic] capacitor 40 should be *minimized* in order to prevent common mode noise signals from interfering with the desired data signals being transmitted over the differential signal pair 15" (FF 3; emphasis added). In the next sentence, the Specification notes that "[t]ypically, the capacitor 40 is designed to have a capacitance in the range of approximately 0.5 pF to approximately 2.5 pF" (FF 2).

The clear import of this discussion is that the parasitic capacitor will typically have a value in the range of approximately 0.5 pF to approximately 2.5 pF to achieve the functionality recited in claim 38. At first blush, this teaching would seemingly render claim 38 definite as it provides some concrete guidance as to typical capacitance values that would achieve the recited functionality.

But under claim differentiation principles, Appellants apparently envision some *other* capacitance values to achieve this functionality. In this regard, we note that all other independent claims (i.e., independent claims 1, 21, and 30) expressly recite that the parasitic capacitor has a capacitance in the range of approximately 0.5 pF to approximately 2.5 pF—values that match those indicated in the Specification. *See* FF 2.

Claim 38, on the other hand, recites no such values. Indeed, the only difference between independent claims 1 and 38 is with respect to the capacitance of the parasitic capacitor. *Compare* claim 1 *with* claim 38.

As such, Appellants have apparently envisioned some capacitance values other than those stated in the Specification (and recited in the other independent claims) to achieve the recited functionality of claim 38. Otherwise, under claim differentiation principles, claim 38 would be superfluous to claim 1. *See Free Motion Fitness*, 423 F.3d at 1351.

Whether or not ordinarily skilled artisans would have to experiment unduly to determine these unstated capacitance values is a question we need not reach, for the disputed language of claim 38 is amenable at least two different plausible interpretations—a fact which itself justifies an indefiniteness rejection. *See Miyazaki*, slip op. at 11-12. That is, the scope of claim 38 is not clear since it could be interpreted narrowly (i.e., limited to capacitance values approximate to those indicated in the Specification and the other independent claims) or more broadly to include capacitance values that are different from the approximate values indicated in the Specification.

Although we find the Examiner's stated rationale for the indefiniteness rejection regarding capacitance values varying over time (Ans. 4, 10) somewhat problematic (since the claim is interpreted by ordinarily skilled artisans in light of the Specification *at the time of the invention*), we nonetheless agree with the Examiner that claim 38 is indefinite under § 112, ¶ 2 for the foregoing reasons. Accordingly, we will sustain the Examiner's indefiniteness rejection of claim 38.

#### THE OBVIOUSNESS REJECTION OVER SUN, HERBERT, AND YORINKS

We now turn to the Examiner's obviousness rejection of claims 1-6, 9-16, 18, 19, 21-23, 25-30, and 33-38 over Sun, Herbert, and Yorinks.

Regarding representative claim 1,<sup>4</sup> the Examiner finds that Sun discloses all of the claimed subject matter except for a parasitic capacitor coupled between the primary and secondary inductors, and relies on Herbert for this teaching (Ans. 5-6). The Examiner also relies on Yorinks for teaching the particular capacitance values recited (Ans. 6).

Appellants argue that the Examiner has used impermissible hindsight in combining the cited references' teachings to arrive at the claimed invention. According to Appellants, there is no motivation to include a parasitic capacitor coupled between the primary and secondary inductors in Sun as the Examiner asserts since the results from such a modification alleged by the Examiner actually arise from isolating and grounding the interstage connection, not the parasitic capacitor (Br. 7). Appellants add that there is no motivation to use low capacitance components in the Sun/Herbert system as the Examiner alleges since using a low rated capacitor would result in an unsafe situation. According to Appellants, such a capacitor would be unable to handle the high power levels at which Herbert operates (Br. 8).

The issue before us, then, is as follows:

#### ISSUE

Under § 103, have Appellants shown that the Examiner erred in combining the teachings of Sun, Herbert, and Yorinks to arrive at the invention of representative claim 1? The issue turns on whether the

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<sup>4</sup> Appellants argue claims 1-6, 9-16, 18, 19, 21-23, 25-30, and 33-38 together as a group. *See* Br. 6-9. Accordingly, we select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Examiner's reason to combine the teachings of these references is supported by articulated reasoning with some rational underpinning to justify the Examiner's obviousness conclusion.

### FINDINGS OF FACT

The record supports the following additional findings of fact (FF) by a preponderance of the evidence:

4. The Examiner's factual findings regarding the respective disclosures of Sun, Herbert, and Yorinks on Pages 5 and 6 of the Answer are undisputed. Accordingly, we adopt these factual findings as our own.

5. Herbert discloses a transformer 1 comprising an input transformer stage 25 with a primary winding 5, a core 3, and a secondary winding 7 (Herbert, col. 3, ll. 52-58; Fig. 3).

6. In Herbert, a parasitic capacitor 71 is coupled between the primary winding 5 and the secondary winding 7 (Herbert, col. 4, ll. 16-20; Fig. 3).

### PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Discussing the question of obviousness of claimed subject matter involving a combination of known elements, *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), explains:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [v. *AG Pro, Inc.*, 425 U.S. 273 (1976)] and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

*KSR*, 127 S. Ct. at 1740. If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that “there was an apparent reason to combine the known elements in the fashion claimed.” *Id.* at 1740-41. Such a showing requires

‘some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’. . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

*Id.* at 1741 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

If the Examiner’s burden is met, the burden then shifts to the Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

## ANALYSIS

Based on the record before us, we are not persuaded that the Examiner erred in rejecting representative claim 1 over the collective teachings of Sun, Herbert, and Yorinks. In reaching this conclusion, we see no reason why ordinarily skilled artisans could not include a parasitic capacitor operably coupled to the primary and secondary inductors of the transformer 504 in Sun, particularly since Herbert provides such a capacitor 71 coupled between primary and secondary windings of a transformer as the Examiner indicates (FF 5-6; Ans. 6). Given that ordinarily skilled artisans would have recognized the filtering capabilities of capacitors, the Examiner's point regarding using such capacitors to reduce noise in the transformer (Ans. 13) is well taken. Using capacitors in this manner is tantamount to the predictable use of prior art elements according to their established functions—an obvious improvement. *See KSR*, 127 S. Ct. at 1740.

We also find unavailing Appellants' arguments (Br. 8) regarding the allegedly unsafe situation arising from using such a low capacitance components, such as that taught by Yorinks, in the Sun/Herbert system. First, Appellants' arguments pertain to the *rating* of the capacitors, not their actual capacitance values. Even assuming, without deciding, that Yorinks' low-value capacitors are not rated sufficiently to withstand the operating voltages present in Sun's transformer, ordinarily skilled artisans would nonetheless not be dissuaded from using low capacitance values for the parasitic capacitor of the Sun/Herbert combination. To this end, ordinarily skilled artisans could readily utilize an appropriately-rated component with similar capacitance values to withstand the voltages present in Sun's transformer. Providing such components to operate in higher-voltage

environments would have been well within the level of ordinarily skilled artisans.<sup>5</sup>

In short, we find the Examiner's reason to combine the teachings of Sun, Herbert, and Yorinks is supported by articulated reasoning with some rational underpinning to justify the Examiner's obviousness conclusion. As such, Appellants have not persuaded us of error in the Examiner's rejection of representative claim 1. Therefore, we will sustain the Examiner's rejection of that claim, and claims 2-6, 9-16, 18, 19, 21-23, 25-30, and 33-38 that fall with claim 1.

#### THE OBVIOUSNESS REJECTION OVER SUN, HERBERT, YORINKS, AND LOWE

Likewise, we will sustain the Examiner's obviousness rejection of claim 20 over Sun, Herbert, Yorinks, and Lowe (Ans. 9). Appellants have not presented any arguments pertaining to this rejection, let alone particularly pointed out errors in the Examiner's reasoning to persuasively rebut the Examiner's prima facie case of obviousness. Therefore, we are not persuaded that the Examiner erred in rejecting claim 20 for the same reasons previously discussed. The rejection is therefore sustained.

#### CONCLUSIONS OF LAW

Appellants have shown that the Examiner erred in rejecting claim 38 under § 112, ¶ 1, but have not shown that the Examiner erred in rejecting

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<sup>5</sup> See *KSR*, 127 S. Ct. at 1740 (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).



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that claim under § 112, ¶ 2. Nor have Appellants shown that the Examiner erred in rejecting claims 1-6, 9-16, 18-23, 25-30, and 33-38 under § 103.

ORDER

The Examiner's decision rejecting claims 1-6, 9-16, 18-23, 25-30, and 33-38 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

ELD

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